

CLAIMS

1. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and at least one arm of said handle, when said cross arm is adjacent said base plate.

2. The sprung surface handle recited in claim 1, further comprising a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

3. The sprung surface handle recited in claim 1, further comprising a stop, on said base plate, adapted to engage

at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

4. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and said cross arm, when said cross arm is adjacent said base plate.

5. The sprung surface handle recited in claim 4, further comprising a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

6. The sprung surface handle recited in claim 4, further comprising a stop, on said base plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

7. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge thereof and said first side arm, and between an edge thereof and said second side arm, when said cross arm is adjacent said base plate.

8. The sprung surface handle recited in claim 7, further comprising a stop in said handle-mounting plate, adapted

to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

9. The sprung surface handle recited in claim 7, further comprising a stop, on said base plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

10. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge of said base plate and said cross arm, between an edge of said base plate and said first side arm, and between an edge of said base plate and said second side arm, when said cross

arm is adjacent said base plate.

11. The sprung surface handle recited in claim 10, further comprising a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

12. The sprung surface handle recited in claim 10, further comprising a stop, on said base plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate.

13. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate,

said handle-mounting plate also having a groove in the bottom surface thereof;

a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and at least one arm of said handle, when said cross arm is adjacent said base plate.

14. The sprung surface handle recited in claim 13 wherein said stop is on said base plate.

15. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said

first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate, said handle mounting plate also having a groove in the bottom surface thereof;

a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle-mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and said cross arm, when said cross arm is adjacent said base plate.

16. The sprung surface handle recited in claim 15 wherein said stop is on said base plate.

17. A sprung surface handle comprising;

a base plate having edges;

a handle having a cross arm, first and second side arms,

and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate, said handle mounting plate also having a groove in the bottom surface thereof;

a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to prevent rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge thereof and said first side arm, and between an edge thereof and said second side arm, when said cross arm is adjacent said base plate.

18. The sprung surface handle recited in claim 17 wherein said stop is on said base plate.

19. A sprung surface handle comprising:

a base plate having edges;

a handle having a cross arm, first and second said arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate, said handle-mounting plate also having a groove in the bottom surface thereof;

a stop, in said handle-mounting plate, adapted to engage one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle-mounting plate, and said second end connected to one of the turned-in ends, to bias said handle

adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge of said base plate and said cross arm, between an edge of said base plate and said first side arm, and between an edge of said base plate and said second side arm, when said cross arm is adjacent said base plate.

20. The sprung surface handle recited in claim 19 wherein said stop is on said base plate.

21. A sprung surface handle comprising:

a base plate having edges, said base plate also having a groove in the top surface thereof;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate;

a stop, in said handle-mounting plate, adapted to engage

at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and at least one arm of said handle, when said cross arm is adjacent said base plate.

22. The sprung surface handle recited in claim 21 wherein said stop is on said base plate.

23. A sprung surface handle comprising:

a base plate having edges, said base plate also having a groove in the top surface thereof;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle-mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at

least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate;

a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle-mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

a raised handle-protecting part, on said base plate, between an edge thereof and said cross arm, when said cross arm is adjacent said base plate.

24. The sprung surface handle recited in claim 23 wherein said stop is on said base plate.

25. A sprung surface handle comprising;

a base plate having edges, said base plate also having a groove in the top surface thereof;

a handle having a cross arm, first and second side arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate on said base plate, said handle-

mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate;

a stop, in said handle-mounting plate, adapted to engage at least one of said side arms, to prevent rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge thereof and said first side arm, and between an edge thereof and said second side arm, when said cross arm is adjacent said base plate.

26. The sprung surface handle recited in claim 25 wherein said stop is on said base plate.

27. A sprung surface handle comprising:

a base plate having edges, said base plate also having a

groove in the top surface thereof;

a handle having a cross arm, first and second said arms, and first and second turned-in coaxial arms, extending from said first and second side arms;

a handle-mounting plate, on said base plate, said handle mounting plate having a channel formed therein, said channel having first and second internal bearing surfaces, said first internal bearing surface at least partially surrounding said first turned-in end, and said second bearing surface at least partially surrounding said second turned-in end, said turned-in ends being rotatable in said bearing surfaces to a position in which said cross arm is adjacent said base plate;

a stop, in said handle-mounting plate, adapted to engage one of said side arms, to stop rotation of the handle, after it has rotated away from said base plate;

a spring having first and second ends, in said channel, said spring having said first end in said groove, between said base plate and said handle-mounting plate, and said second end connected to one of the turned-in ends, to bias said handle adjacent said base plate; and

raised handle-protecting parts, on said base plate, between an edge of said base plate and said cross arm, between an edge of said base plate and said first side arm, and between an edge of said base plate and said second side arm, when said cross arm is adjacent said base plate.

28. The sprung surface handle recited in claim 27 wherein said stop is on said base plate.

29. A sprung surface handle comprising:
a base plate having edges;
a handle rotationally mounted on said base plate; and
a raised handle protecting part, on said base plate, between and edge thereof and said handle, when said handle is adjacent said base plate.

30. The sprung surface handle recited in claim 29, further comprising a spring to bias said handle adjacent said base plate.